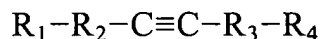


WHAT IS CLAIMED IS:

1. A cleaning solution comprising deionized water, a
surfactant and a corrosion inhibitor comprising triple bond and at least
5 one hydroxyl group.

2. The cleaning solution as claimed in claim 1, wherein the
corrosion inhibitor is represented by the following formula:



10 wherein any one of R_1 and R_4 is the hydroxyl group (-OH) and the
other is hydrogen (-H), a halogen element (-X) or one functional group
selected from the group consisting of alkyl (-R) group, alkoxy (RO-)
group, amino (-NH₂) group, nitro (-NO₂) group, mercapto (-SH) group,
hydroxyl (-OH) group, aldehyde (-CHO) group and carboxyl (-COOH)
15 group; and

R_2 and R_3 are hydrocarbons having 0 to 10 carbons and straight or
branched structure.

3. The cleaning solution as claimed in claim 2, wherein the
20 other of R_1 and R_4 is a hydroxy group (-OH), a methyl group (-CH₃) or a
methoxy group (-OCH₃).

4. The cleaning solution as claimed in claim 2, the corrosion inhibitor is about 0.0001 to about 10 wt.% of the cleaning solution.

5. The cleaning solution as claimed in claim 1, the corrosion inhibitor is 2-butyne-1,4-diol.

6. The cleaning solution as claimed in claim 1, wherein the surfactant is represented by the following formula:



wherein R_5 is methyl group;

K is an integer ranging from 3 to 22; and

A is $HO(CH_2CH_2O)_L(CH(CH_3)CH_2O)_M-$ or hydroxyl group, wherein L and M are integers ranging from 0 to 15.

7. The cleaning solution as claimed in claim 6, wherein the surfactant is about 0.0001 to about 10wt.% of the cleaning solution.

8. The cleaning solution as claimed in claim 1, wherein the surfactant is $C_{12}H_{25}O(CH_2CH_2O)_JH$, wherein J is an integer ranging from 5 to 15.

9. The cleaning solution as claimed in claim 1, further comprising an acid solution or an alkaline solution.

10. The cleaning solution as claimed in claim 9, wherein the alkaline solution is selected from the group consisting of sodium hydroxide (NaOH), potassium hydroxide (KOH), ammonium hydroxide (NH₄OH), tetramethyl ammonium hydroxide (N(CH₃)₄OH), chloride solution, or any mixture thereof.

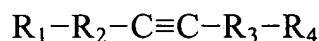
11. The cleaning solution as claimed in claim 9, wherein the alkaline solution is about 0.0001 to about 10 wt.% of the cleaning solution.

12. The cleaning solution as claimed in claim 9, wherein the acid solution is selected from the group consisting of hydrochloric acid (HCl), nitric acid (HNO₃), sulfuric acid (H₂SO₄), phosphoric acid (mP₂O₅·nH₂O), fluoric acid (HF), an organic acid, and any mixture thereof.

13. The cleaning solution as claimed in claim 12, wherein the organic acid is selected from the group consisting of citric acid, tricarballic acid, tartaric acid, succinic acid, malic acid, aspartic acid, glutaric acid, adipic acid, suberic acid, oxalic acid, acetic acid and fumaric acid.

14. The cleaning solution as claimed in claim 9, wherein the acid solution is about 0.0001 to about 10 wt.% of the cleaning solution.

15. A cleaning solution comprising a corrosion inhibitor
5 represented by the following formula:



wherein any one of R_1 and R_4 is a hydroxyl group (-OH) and the other is hydrogen (-H), a halogen element (-X) or one functional group
10 selected from the group consisting of alkyl (-R) group, alkoxy (RO-) group, amino (-NH₂) group, nitro (-NO₂) group, mercapto (-SH) group, hydroxyl (-OH) group, aldehyde (-CHO) group and carboxyl (-COOH) group; and

R_2 and R_3 are hydrocarbons comprising 0 to 10 carbons having a
15 straight or a branched structure.

16. The cleaning solution as claimed in claim 15, wherein the other of R_1 and R_4 is a hydroxy group (-OH), a methyl group (-CH₃) or a methoxy group (-OCH₃).

17. The cleaning solution as claimed in claim 15, the corrosion inhibitor of the formula 1 is about 0.0001 to about 10 wt.% of the
20 cleaning solution.

18. The cleaning solution as claimed in claim 15, the corrosion inhibitor is 2-butyne-1,4-diol.

19. The cleaning solution as claimed in claim 15, further comprising a surfactant represented by the following formula:



wherein R_5 is methyl group;

K is an integer ranging from 3 to 22; and

A is $HO(CH_2CH_2O)_L(CH(CH_3)CH_2O)_M-$ or hydroxyl group, wherein L and M are integers ranging from 0 to 15.

20. The cleaning solution as claimed in claim 19, wherein the surfactant is about 0.0001 to about 10wt.% of the cleaning solution.

21. The cleaning solution as claimed in claim 19, wherein the surfactant is $C_{12}H_{25}O(CH_2CH_2O)_JH$, wherein J is an integer ranging from 5 to 15.

22. The cleaning solution as claimed in claim 15, further comprising an acid solution or an alkaline solution.

23. The cleaning solution as claimed in claim 22, wherein the alkaline solution is selected from the group consisting of sodium hydroxide (NaOH), potassium hydroxide (KOH), ammonium hydroxide (NH₄OH), tetramethyl ammonium hydroxide (N(CH₃)₄OH), chloride solution, and any mixtures thereof.

24. The cleaning solution as claimed in claim 22, wherein the alkaline solution is about 0.0001 to about 10 wt.% of the cleaning solution.

25. The cleaning solution as claimed in claim 22, wherein the acid solution is selected from the group consisting of hydrochloric acid (HCl), nitric acid (HNO₃), sulfuric acid (H₂SO₄), phosphoric acid (mP₂O₅·nH₂O), fluoric acid (HF), an organic acid, and any mixture thereof.

26. The cleaning solution as claimed in claim 25, wherein the organic acid is selected from the group consisting of citric acid, tricarballic acid, tartaric acid, succinic acid, malic acid, aspartic acid, glutaric acid, adipic acid, suberic acid, oxalic acid, acetic acid and fumaric acid.

27. The cleaning solution as claimed in claim 22, wherein the acid solution is about 0.0001 to about 10 wt.% of the cleaning solution.